IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Peter F. Symosek et al.
Examiner: Kibrom K. Gebresilassie
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Group Art Unit: 2128
Confirmation No.: 9337
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For: SIGNATURE SIMULATOR

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Lynn Thompson — October 12, 2007
Lynn Thompson — Date

Applicants submit that the Examiner's rejections contain at least the following clear errors and/or omissions of one or more essential elements needed for a prima facie rejection.

Claims 7-9 and 23-32 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. In particular, the Examiner asserts that "computer system" is nowhere specified in the disclosure. Applicants submit that "computer system" clearly is implicitly or inherently disclosed in the specification as filed and a person of ordinary skill in the art would have clearly understood this. The disclosure of algorithms, computational blocks, and input and output data at, for example, pages 4-8, would be understood by one of ordinary skill in the art to denote a computer system. In particular, the disclosure of MODTRAN as a major component of the simulation (page 6, line 20 through page 7, line 3) implicitly indicates a computer system because MODTRAN is a FORTRAN-like computer code.

Claims 7-9 and 23-32 were rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In the Advisory Action mailed October 3, 2007, the Examiner asserted that a "device" could be software per se, and the specification does not teach a "device" as a physical component. In the Examiner's quoted IEEE definition for device, recited in the Final Office Action at page 8, lines 7-8, the Examiner appears to have added the notation "(Software)". The actual cited definition appears to be that a "device" is "a <u>mechanism</u> or <u>piece of equipment</u> design to serve a purpose or perform a function", which one of ordinary skill in the art would understand to be a physical unit or hardware, which is statutory subject matter. Further, Wiley's Electrical and Electronics Engineering Dictionary defines device as "a <u>physical unit or mechanism</u> which performs a specific function or serves a particular purpose. … A

hardware component or subsystem in a computer". Dictionary.com defines a device as "a thing made for a particular purpose; an invention or contrivance, esp. a mechanical or electrical one." As such, "device" is believed to be hardware and thus, statutory.

Claims 7-9 and 23-32 were rejected under 35 U.S.C. 103(a) as being unpatentable over Flanigan (U.S. 6,266,428) in view of Wang et al. (U.S. 5,982,486). The Examiner asserts that Flanigan discloses a simulator system including a chemical agent detection environment simulation, citing column 3, lines 12-15 and Fig. 20 for support. Flanigan does not appear to teach a chemical agent detection environment simulation, as is recited in independent claim 7. Instead, Flanigan appears to teach "a system for detecting and discriminating a hazardous cloud in a field of view" that "provides for real-time imaging of hazardous vapor and aerosol clouds from a sensor mounted on either a static or moving platform." Emphasis added; see column 3, lines 41-43 and column 4, lines 49-51. Flanigan also teaches simulating $\Delta^2 L$ using a 3-layer model, where $\Delta^2 L$ is the difference between radiances actually induced by a cloud. See column 6, line 66 through column 7, line 1. The Examiner cites column 3, lines 12-15 and column 4, lines 40-47 as teaching the claimed simulation. These passages recite:

> An object of the invention is to provide a system and method for remote detection of hazardous clouds (vapors and aerosols) that avoids the above-noted deficiencies of the related art.
>
> The present invention finds utility in the imaging of clouds composed of hazardous vapors or aerosols in situations where a high level of importance is placed on detection and warning, such as chemical warfare defense or protection of civilians in the wake of chemical plants. The invention finds further utility for emergency management in hazardous spills and for monitoring suspected terrorist activities, drug processing, and chemical manufacturing.

Nowhere does this appear to suggest the claimed simulation. Applicants submit that one of ordinary skill in the art would understand that the detection of Flanigan is not a simulation, as is recited in the claims. Furthermore, the Examiner acknowledges that Flanigan fails to disclose a background measurement environment interferogram source, but asserts that it would have been obvious to one of ordinary skill in the art to combine the teachings of Wang et al. with Flanigan because it would have been convenient to use a background measurement environment interferogram source such as the FTIR spectrometer taught by Wang for the system of Flanigan

to remotely detect and discriminate hazardous clouds in a field of view. "The prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed…." *In re Fulton*, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004). As such, it appears that a disclosure that criticizes, discredits, or otherwise discourages the solution claimed does constitute a teaching away from the claimed invention. Accordingly, it appears that Flanagan teaches away from the combination of FTIR spectrometer as taught by Wang because Flanagan appears to criticize the use of, or teach that it is disadvantageous to use, FTIR sensors/systems. To illustrate at least some of these deficiencies of FTIR sensors, Flanagan recites:

> The M21 uses a conventional Fourier transform infrared (FTIR) sensor to produce a spectrum from which a decision is made on the presence or absence of a chemical agent cloud. …The problem has been finding a recursive weight that does not have either too many false alarms or too few detections…. The M21 scans seven separate, discontinuous FOV's (each of 1.5.degree. by 1.5.degree. separated by 10.degree. center to center), but does not produce an image. There are several proposed FTIR concepts that use arrays of detectors in the image plane of the interferometer, but these produce relatively conventionally sized images that are insufficiently large to form an image of a realistic threat cloud and/or insufficient etendue (throughput limited by the detector, the interferometer, the collector or the cloud size) for good sensitivity.

(Column 1, line 65-column 2, line 22). Flanagan also recites:

> An object of the invention is to provide a system and method for remote detection of hazardous clouds (vapors and aerosols) that avoids the above-noted deficiencies of the related art.

(Column 3, lines 12-15). As can be clearly seen, Flanagan teaches that using an FTIR sensor/system has deficiencies, and his system avoids these deficiencies. Flanagan recites:

> a system for detecting and discriminating a hazardous cloud in a field of view, the system comprising: detector means for (i) taking a first Δ^2L spectrum in the field of view at a first spectral resolution and (ii) taking a second Δ^2L spectrum in the field of view at a second spectral resolution which is higher than the first spectral resolution;

(Column 3, lines 41-47). As can be seen, Flanagan appears to teach advantages of using a system based on Δ^2L spectrum measurements as a means of overcoming the deficiencies of conventional FTIR systems, such as that taught by Wang et al. Applicant respectfully submits that because of Flanagan's teachings regarding the disadvantages of the FTIR systems, there is no motivation or suggestion in the art for the skilled artisan to combine the teachings of Wang et al. with Flanagan as Flanagan appears to teach away from such a combination. In the Advisory Action, the Examiner asserts that "[o]ne of ordinary skill in the art that has access to the teaching of both references could use those different techniques to come up with the same final result such as detecting the chemical agents beforehand." Emphasis added. MPEP 2143.01 III states,

> The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)… Although a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so.' 916 F.2d at 682, 16 USPQ2d at 1432.).

Nowhere do the references appear to teach or suggest the desirability of the combination. Applicants submit that in view of Flanigan's specific teachings of the disadvantages of the FTIR spectrometer, one of ordinary skill in the art would have no motivation to go against these specific teachings and combine the Flanigan system with FTIR.

Regarding clam 23, neither Flanagan nor Wang et al. appear to teach a simulated sensor output. The Examiner cites column 11, lines 49-56 and column 12, lines 6-10 of Wang, which recite:

> The alternative reference spectrum which is selected has a much higher concentration-pathlength level, for example, 1000 ppm-m, and more closely simulates the saturation condition existing in the environment. The alternative reference spectrum is now used in the quantitative analysis preferably employing a CLS method from which is generated a new concentration-pathlength product (CL) and MDL.

> spectrum. The data from the quantitative analysis step, i.e., the various concentration-pathlength products and MDL's for each of the reference spectra are then compared, and the data which most closely fits the expected CL product and MDL is chosen for output.

Nowhere does this appear to teach a simulated sensor output. Instead, it appears to teach choosing an output according to the data which most closely fits the expected CL product and MDL.

Regarding claim 31, neither Flanigan nor Wang et al. appear to teach a sensor response removal module. Instead, the detector array of Flanigan appears to be two detectors used in tandem, but does not appear to provide a sensor response removal module. The Examiner cites column 13, lines 60-63 of Wang et al., which recites:

> is shown in FIG. 12. The signal processing procedure consists of bias removal, phase error correction, computing absorption spectrum, CLS quantitative analysis and final detecting of chemical agents. The outputs of the signal processing procedure are the detection (including CL and MDL) and false alarm probabilities.

Nowhere does this appear to teach a sensor response removal module. In the Advisory Action the Examiner asserts that the bias removal of Wang et al. has a similar function as the sensor response removal module as claimed. The Examiner has not, however, provided any reasoning or support for such an assertion. Wang et al. does not provide such a teaching and one of ordinary skill in the art would have no reason to believe that the bias removal of Wang et al. would have a similar function to the claimed system.

For at least the reasons set forth above, the combination of Flanagan and Wang et al. does not appear to teach or suggest the elements of the clams. As such, Applicant respectfully requests withdrawal of the rejections.

Respectfully submitted,

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